

WHAT IS CLAIMED IS:

1. An optical sheet comprising:

a retardation film; and

a transparent layer provided on one of opposite surfaces
5 of said retardation film;

wherein said retardation film exhibits $N_z = (n_x - n_z) / (n_x - n_y)$ in a range of from 0.6 to 0.9 and $(n_x - n_y)d$ in a range of from 200 to 350 nm in which d is a thickness of said retardation film, n_z is a refractive index in a direction of a Z axis expressing
10 a direction of the thickness d of said retardation film, n_x is a refractive index in a direction of an X axis expressing a direction of said retardation film in a plane perpendicular to said Z axis while said X axis also expresses a direction of the highest in-plane refractive index, and n_y is a refractive
15 index in a direction of a Y axis expressing a direction of said retardation film perpendicular both to said Z axis and to said X axis; and

wherein said transparent layer has a thickness not larger than 10 μm and exhibits refractive index anisotropy of $n_x \neq n_y > n_z$.
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2. An optical sheet according to claim 1, wherein said transparent layer is made of a coating film of an organic material.

3. An optical sheet according to claim 1, wherein said transparent layer is constituted by a cholesteric liquid-crystal layer.

5 4. A polarizer comprising a laminate of an optical sheet according to claim 1 and a polarizing film.

10 5. A polarizer according to claim 4, wherein said polarizing film is disposed on a side of said optical sheet opposite to the transparent layer side of said optical sheet so that said X axis direction of said retardation film of said optical sheet is parallel with an axis of absorption of said retardation film.

15 6. A liquid-crystal display device comprising:
a vertically oriented liquid-crystal cell; and
a pair of polarizers each according to claim 5, said pair of polarizers being provided on opposite sides of said cell;
wherein a transparent layer in each of said pair of
20 polarizers is positioned on corresponding one of opposite sides of said cell; and

wherein said pair of polarizers provided on said opposite sides of said cell are disposed in the form of crossed-Nicol.

7. A liquid-crystal display device according to claim 6, wherein a sum of absolute values of thicknesswise retardations each defined by a product of $\{(n_x + n_y)/2 - n_z\}$ and a layer thickness of said transparent layer in each of said pair of polarizers disposed on the opposite sides of said liquid-crystal cell is in a range of from 0.5 times to 1.3 times as large as an absolute value of a thicknesswise retardation of said liquid-crystal cell.

8. A liquid-crystal display device comprising:
a vertically oriented liquid-crystal cell;
a pair of polarizers each according to claim 5, said pair of polarizers being disposed in the form of crossed-Nicol on opposite sides of said liquid-crystal cell; and

at least one phase retarder disposed between said liquid-crystal cell and one or both of said polarizers;

wherein said phase retarder exhibits refractive index anisotropy of $n_x \neq n_y > n_z$; and

wherein a sum of absolute values of thicknesswise retardations defined by a product of $\{(n_x + n_y)/2 - n_z\}$ and a layer thickness of each of transparent layers of said polarizers disposed on said opposite sides of said liquid-crystal cell and an absolute value of a thicknesswise retardation of said phase retarder is in a range of from 0.5

times to 1.3 times as large as an absolute value of a thicknesswise retardation of said liquid-crystal cell.